

What is claimed is:

1. A device for converting an input signal comprising a bipolar pulse with a positive part and a negative part of same duration into a difference signal, comprising:

a delay member with an input for receiving the input signal and an output, for delaying the input signal to obtain a delayed signal and for outputting the delayed signal at an output; and

a differential amplifier with a first input for receiving the input signal, a second input for receiving the delayed signal and an output for outputting the difference signal formed from the input signal and the delayed signal.

2. The device in accordance with claim 1, further comprising:

a comparator for determining whether the difference signal is greater than a first predetermined threshold, for determining whether the difference signal is smaller than a second predetermined threshold, and for outputting a binary signal depending on whether the difference signal is greater than the first predetermined threshold or smaller than the second predetermined threshold.

3. The device in accordance with claim 1, wherein the delay member includes a first partial delay member with an input for receiving the input signal and an output for outputting a partially delayed signal and a second partial delay member with an input for receiving the partially delayed signal and an output for outputting the delayed signal, further comprising:

an edge detector for detecting an edge of the partially delayed signal.

4. The device in accordance with claim 3, further comprising:

a comparator for determining whether the difference signal is greater than a first predetermined threshold, for determining whether the difference signal is smaller than a second predetermined threshold, and for outputting a binary signal depending on whether the difference signal is greater than the first predetermined threshold and the partially delayed signal comprises a rising edge or whether the difference signal is smaller than the second predetermined threshold and the partially delayed signal comprises a falling edge.

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5. The device in accordance with claim 1, wherein the delay member comprises a plurality of partial delay members, which are connected in series between the input and the output of the delay member, to generate several varyingly strong delayed signals,

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wherein the differential amplifier further comprises a plurality of first inputs for receiving a plurality of first input signals and a plurality of second inputs for receiving a plurality of second input signals and wherein the differential amplifier is further implemented to select one of the plurality of first input signals to be a selected first input signal and to select one of the plurality of second input signals to be a selected second input signal and to output a further difference signal formed from the selected input signal and the selected output signal.

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6. The device in accordance with claim 5,

30 wherein the differential amplifier is further implemented to select one of the plurality of first input signals to be the selected input signal and to select one of the plurality of second input signals to be the selected second input signal depending on the duration of the positive part and of the negative part of the bipolar pulse of the input signal, and

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wherein the device further comprises a comparator for determining whether the further difference signal is greater than a

first predetermined threshold and for determining whether the further difference signal is smaller than a second predetermined threshold, and for outputting a binary signal depending on whether the further difference signal is greater than the first predetermined threshold or smaller than the second predetermined threshold.

7. The device in accordance with claim 6,

10 wherein the differential amplifier further comprises an input for receiving a partially delayed signal, and

wherein the comparator is further implemented to determine whether the further difference signal is greater than a first predetermined threshold, to determine whether the further difference signal is smaller than a second predetermined threshold, and to output a binary signal depending on whether the further difference signal is greater than the first predetermined threshold and the partially delayed signal comprises a rising edge or whether the further difference signal is smaller than the second predetermined threshold and the partially delayed signal comprises a falling edge.

8. A device for transmitting a bit, comprising:

25 a driver for driving the input signal comprising a pulse with a positive part and a negative part of same duration which encodes the bit;

30 a transmission line for transmitting the input signal with an input, which is connected to the driver, and an output;

a device for converting the input signal into a difference signal, the device comprising a delay member with an input for receiving the input signal and an output, for delaying the input signal to obtain a delayed signal and for outputting the delayed signal at an output, and a differential amplifier with a first input for receiving the input signal, a second input

for receiving the delayed signal and an output for outputting the difference signal formed from the input signal and the delayed signal; and

5 a termination load, which is connected to the output of the delay member.

9. The device in accordance with claim 8, wherein the termination load is connected to the output of the delay member via
10 a further transmission line.

10. A method for converting an input signal, comprising a bipolar pulse with a positive part and a negative part of same duration, into a difference signal, comprising:

15 delaying the input signal to obtain a delayed signal;

forming a difference signal from the input signal and the delayed signal.

20 11. The method in accordance with claim 10, further comprising: determining whether the difference signal is greater than a first predetermined threshold or smaller than a second predetermined threshold;

25 outputting a binary signal depending on whether the difference signal is greater than the first predetermined threshold or smaller than the second predetermined threshold.

30 12. The method in accordance with claim 10, further comprising:

generating a partially delayed signal from the input signal, wherein the delay of the partially delayed signal as against
35 the input signal is less than the delay of the delayed signal as against the input signal; and

detecting an edge of the partially delayed signal.

13. The method in accordance with claim 12, further comprising:

5 determining whether the difference signal is greater than a first predetermined threshold or smaller than a second predetermined threshold;

10 outputting a binary signal depending on whether the difference signal is greater than the first predetermined threshold and the partially delayed signal comprises a rising edge or whether the difference signal is smaller than the second predetermined threshold and the partially delayed signal comprises a falling edge.

15 14. The method in accordance with claim 10, further comprising:

generating a plurality of varyingly strong delayed signals;

20 selecting of two of the plurality of varyingly strong delayed signals depending on the duration of the positive part and of the negative part of the bipolar pulse to obtain a first selected signal and a second selected signal; and

25 forming a further difference signal from the first selected signal and from the second selected signal.

15. A method for transmitting a bit, comprising:

30 driving an input signal comprising a pulse with a positive part and a negative part of same duration which encodes the bit;

35 transmitting the input signal;

converting the input signal into a difference signal, by delaying the input signal to obtain a delayed signal, and form-

ing a difference signal from the input signal and the delayed signal; and

decoding the bit by means of the difference signal.